an obturator (7_2) is fixed in continuous and tight manner at the end of the outer wall of pipe (1) to be insulated; and

there are mounted on this part of pipe (1), elements of the absorbent matrix (2) which surround the latter completely and uniformly, there is fitted around these matrix elements (2) the outer protective envelope (3) which is connected at its end to the obturator (7_2), there is positioned at the other end of the protective envelope (3) a second obturator (7_1) which is fixed on this envelope and on the pipe (1), the annular space included between the pipe (1) and the envelope (3) is completely filled, via one end, with said phase change material (4) liquefied and overheated above its melting temperature T_0 and until the matrix elements (2) are completely impregnated with it, the whole is cooled.

28. (currently amended) ~~Process~~ The process of ~~heat insulation according to~~ claim ~~29~~, ~~characterized in that~~wherein:

there are interposed between absorbent matrix elements (2), distance pieces (9) regularly spaced along the pipe (1) on which they abut, when all the elements of the protective element (3) have been placed in position and fixed to constitute the containment envelope, straps (17) for holding said distance pieces (9) plumb are placed in position, the annular space is then filled with said liquefied material (4) under pressure in order to deform the outer envelope (3) between said straps (17), which deformation corresponding to the increase in volume generated by the thermal expansion of the material (4) liquid at filling temperature.